Si4946BEY vs. Si4946EY

Description: **Dual N-Channel, 60 V (D-S) MOSFET**
Package: **SO-8**
Pin Out: **Identical**

Part Number Replacements:
Si4946BEY-T1-E3 Replaces Si4946EY-T1-E3
Si4946BEY-T1 Replaces Si4946EY-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
Parameter		**Symbol**	**Si4946BEY**	**Si4946EY**	**Unit**
Drain-Source Voltage		V_{DS}	60	60	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	5.3	4.5	A
	T_A = 70 °C		4.4	3.8	
Pulsed Drain Current		I_{DM}	30	30	
Continuous Source Current (MOSFET Diode Conduction)		I_S	2	2	
Avalanche Current	L = 0.1 mH	I_{AS}	12	12	
Power Dissipation	T_A = 25 °C	P_D	2.4	2.4	W
	T_A = 70 °C		1.7	1.7	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	62.5	62.5	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
Parameter		**Symbol**	**Si4946BEY**			**Si4946EY**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	1.0	2.4	3.0	1.0		3.0	V
Gate-Body Leakage		I_{GSS}			± 100			± 100	nA
Zero Gate Voltage Drain Current		I_{DSS}			1			1	µA
On-State Drain Current	V_{GS} = 10 V	$I_{D(on)}$	30			20			A
Drain-Source On-Resistance	V_{GS} = 10 V	$r_{DS(on)}$		0.033	0.041		0.045	0.055	Ω
	V_{GS} = 4.5 V			0.041	0.052		0.055	0.075	
Forward Transconductance		g_{fs}		24			13		S
Diode Forward Voltage		V_{SD}		0.8	1.2		0.9	1.2	V
Dynamic									
Total Gate Charge		Q_g		17	25		19	30	nC
Gate-Source Charge		Q_{gs}		3.3			4		
Gate-Drain Charge		Q_{gd}		3.7			3		
Gate Resistance		R_g	3.1	6.5	9.5	1		3.6	Ω
Switching									
Turn-On Time[a]		$t_{d(on)}$		10	15		13	20	ns
		t_r		12	20		11	20	
Turn-Off Time[a]		$t_{d(off)}$		25	40		36	60	
		t_f		10	15		11	20	
Source-Drain Reverse Recovery Time		t_{rr}		25	50		35	60	

Notes:
a. Datasheet test conditions differ; *R_L = 6.8 Ω, I_D = 4.4 A, R_g = 1 Ω* on the Si4946BEY and *R_L = 30 Ω, I_D = 1 A, R_g = 6 Ω* on the Si4946EY.

Specification comparisons are supplied as a courtesy to compare two devices and do not constitute a commercial product datasheet or any guarantee of identical performance. Designers should refer to the appropriate datasheets of the same number for guaranteed specification limits.